

Traditional IP Camera

IP Network Camera User Manual

Model IP-CAM850



Version 1.0.0

Safety Instructions

These instructions are intended to ensure that the user can install and use the product safely.

The precaution measures are divided into “Warnings” and “Cautions”

Warnings: Serious injury may be caused if warnings are not followed.

Cautions: Injury or equipment damage may be caused if cautions are not followed.

Warnings

1. This product must only be used in strict compliance with UK electrical standards and safety regulations.
2. Input voltage must be applied according to specification and meet the IEC60950 - 1 standard. Please refer to technical specifications to ascertain whether camera works on 24AC, 12vDC or either and whether camera is polarity sensitive or not.
3. It is recommended to use a separate power supply for each camera and to avoid overload, that the power supply is adequately rated to cover the current rating of camera plus 30% head room to ensure overheating is not caused which can create a fire hazard. If using a 12vDC power supply, it must be regulated.
4. Always make sure that power plugs are firmly inserted into power sockets.
5. When the product is installed on a wall or ceiling, the device must be firmly fixed.
6. If smoke, odour or noise is emitted from the device, turn off the power at once and unplug the power cable.
7. If the product fails to work properly, please contact your installer and never attempt to disassemble the camera yourself. (We cannot assume any responsibility for problems caused by unauthorised repair or maintenance.)
8. Using PoE
This camera supports PoE. This allows the camera to be powered over Ethernet. You must have a switch that has PoE ports in which to connect the camera network connection.

Note that only specific IP cameras can be powered using this method and this does not apply to conventional analogue cameras.

Cautions

1. Make sure the power supply voltage is correct before using the camera.
2. Do not drop the camera or subject it to physical shock.
3. Do not touch the CCD (Charge Coupled Device) modules with fingers. If cleaning is necessary, use a clean cloth and a little ethanol and wipe it gently. If the camera is not used for an extended period, please fit the lens cap to protect the CCD from dust and dirt.
4. Do not aim the camera at the sun or use in very bright places. A blooming or smearing may occur otherwise (which is not a malfunction), and this can affect the life of the CCD.
5. The CCD can be burnt out by a laser beam. Where laser equipment is used, make sure that the surface of the CCD is not exposed to laser light.
6. The camera should only be operated in temperatures between $-10^{\circ}\text{C} \sim +60^{\circ}\text{C}$ and must not be installed in dusty or damp locations and not exposed to high electromagnetic radiation.
7. To avoid heat accumulation, good ventilation is required for operating environment.
8. Keep the camera away from liquid when in use.

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1. Introduction

This network camera is a type of embedded digital surveillance product that combines the features of both traditional analogue camera and networked DVS (Digital Video Server). Due to the embedded Linux operation system and the latest TI DaVinci hardware platform the system operates with high scheduling efficiency. Furthermore, the firmware is burned onto the flash drive, which makes the product small, reliable and highly stable.

1.1 Network camera Functions and Features

The IP-CAM850 cameras support H.264 video Encoding and Oggvorbis Audio Encoding techniques. The camera accessing the Hybrid DVR9K uses the H.264 video codec.

The IP-CAM850 cameras support the E-PTZ function.

The IP-CAM850 cameras have an OSD menu that can be displayed on screen by entering a 95 CALL via the client software or via Internet Explorer.

The Network Functionality supporting TCP/IP includes TCP/IP, HTTP, DHCP, DNS, RTCP and PPPoE. Also IE browsing is available.

Heartbeat Function: The Heartbeat function allows the IP camera to initially communicate with a server regardless of the internal camera IP address.

Alarm Function: The product includes one input alarm channel and one alarm on/off output, and also supports motion detection, video loss, masking alarm and external alarm input.

Voice Talking : Supports two way audio.

User Management: Supports multilevel rights management. The administrator can create up to 15 separate users with different rights levels, which highly improve system security.

The IP-CAM850 cameras support 12.5fps (UXGA), 25fps in PAL (4CIF, DCIF, 2CIF, CIF, QCIF) and 30fps in NTSC. Note: UXGA (1600 x 1200).

These products offer a 10M/100M self-adaptive Ethernet interface.

These cameras support parameter settings, the ability to browse real time videos and check camera performance through software or IE, and set external alarming and store the compressed bit rate through the network. They also support remote upgrades and maintenance. RS-485 supports monomial transparent channel function so that clients on remote PC can control the serial devices.

2. Installation

1. Read the following instructions carefully before installation.
2. Make sure that all the related equipment is powered down during the installation.
3. Check the power supply to prevent any damage caused by mismatching problems.
4. This product must not be installed in conditions of high humidity or high temperatures. Inadequate ventilation, dampness or vibration must be avoided.
5. Do not attempt to disassemble the camera yourself. Users are responsible for any problems caused by modifications, unauthorised repair or poor installation and are not supported by the manufacturer's warranty.
6. Power Supply, Lens and SD card are Optional.

2.1 Panels Description

2.1.1 Side Elevation of the Camera



Fig 2.1.1.1 Side Elevation of IP-CAM850 series camera

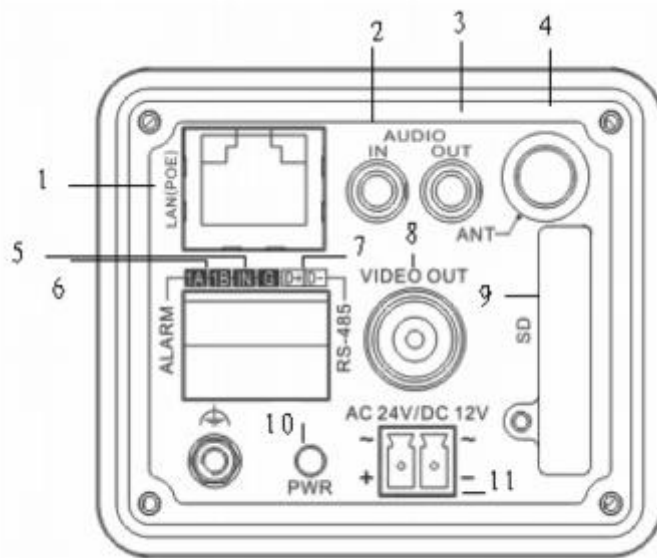


Fig. 2.1.1.2 Rear Panel Description

1. Standard Ethernet (UTP) RJ45 (10M/100M self-adaptive).
2. 1 channel voice talk input, 3.5mm audio interface, 2.0 ~ 2.4v p~p, 1k Ω
3. 1 channel voice talk output, 3.5mm audio interface, line level, 600 Ω
4. Antenna connection – not available
5. 1 channel Alarm Input (IN) Ground (G)
6. 1 channel Alarm Output (1A 1B)
7. RS485 (T+ T-)
8. Video Output
9. SD card slot
10. Power supply indicator light
11. Power Supply interface 12vDC \pm 10% or 24vAV

2.2 Product Installation

2.2.1 Traditional camera Installation

The traditional camera can be fixed on either wall or ceiling. They are indoor cameras but can be installed outside in heated housings. Please follow the steps below. If fixing to ceiling for example, fixing to wall follows the same rule. Choose the fixing method and fix the camera bracket accordingly. If it is wall mounted, you will need to fix the expand bolt. Note that the mounting hole for the expand bolt should align with the bracket before fixing the bracket. If the wall surface is wooden, the first step can be ignored and you can use the self-tapping screw to directly fix the bracket. Please note that the wall on which the camera is fixed should be able to bear at least three times the weight of the bracket and the camera.

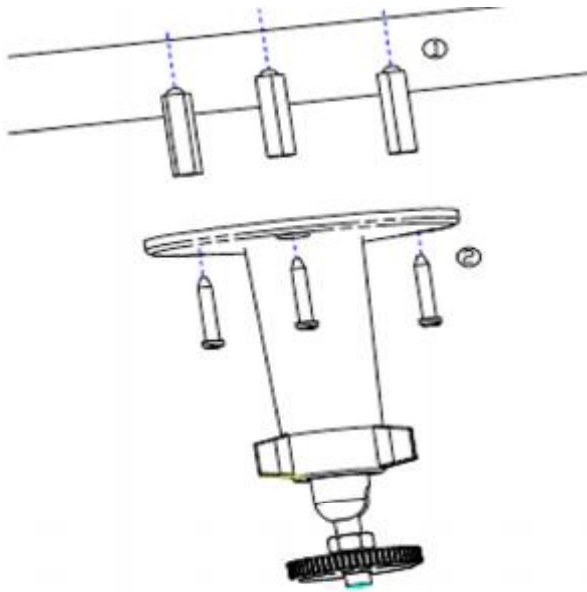


Fig 2.2.1.1 Fix Ceiling Bracket



Fig 2.2.1.2 Fix Camera

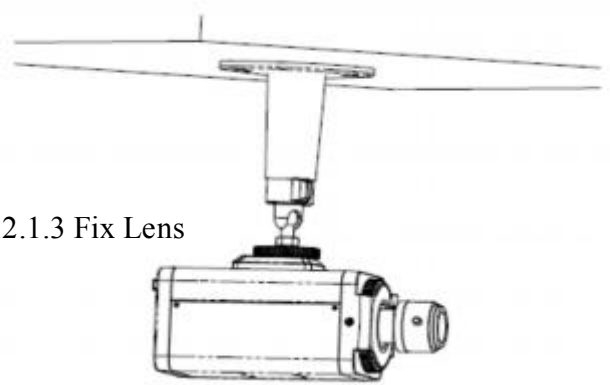


Fig 2.2.1.3 Fix Lens

2.2.1.4 Topological graph of IP-CAM850

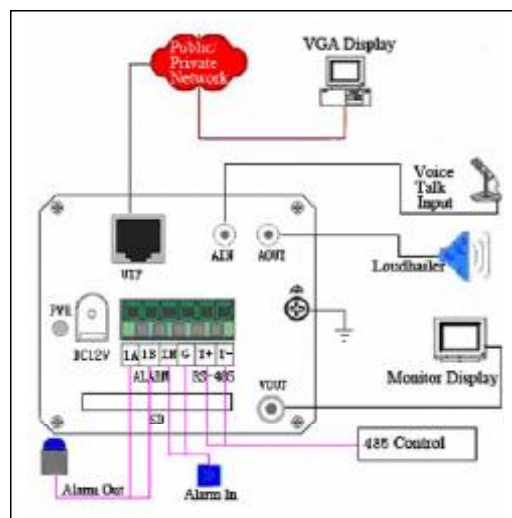


Fig 2.2.1.5 Physical Interface	Connection
UTP Network Interface	Connect to network devices, such as switch , HUB, etc. Please refer to Appendix B for pin Definition.
Audio Input (AIN)	Connect to audio input devices such as active tone (2.0 ~ 2.4Vp-p, 1kΩ)
Audio Output (AOUT)	Connect to sounders like loudhailer 600Ω.
Power Supply (DC12V)	Please refer to the appendix for specified types. Please use a matched regulator.
Alarm Output (1A 1B)	1 channel alarm out. Please refer to Section 2.3.2 for connecting instructions. (external series-wound power shall be under 12V DC / 30mA)
Alarm Input (IN G)	1 channel alarm in.
RS-485 Interface (T+ T-)	Connect to RS-485 devices like PTZ.
SD card slot	Insert an SD card for local storage.
Video Output (VOUT)	Standard BNC, connect to monitor.

2.3 Installation of Client software

The DVR9K client software manual is supplied on the CD with the client software. The client software is installed using help screens and these are covered in the client software manual. The client software interfaces with both the DVR9K digital video recorder and/or the IP cameras.

2.4 The IP-CAM850 functions and menu settings

2.4.1 The E-PTZ function

Under the resolution of QCIF/CIF/DCIF/2CIF/VGA/D1/SVGA, the pan\tilt\zoom operation is supported. Note that the pan and tilt operation can only be carried out after zooming in. These cameras support 127 preset positions (preset 95 is excluded as it is used to call the menu). HD720p resolution only supports pan and tilt operation and does not support zoom operation. UXGA resolution does not support E-PTZ function.

Max support frame rate :

50Hz QCIF/CIF/2CIF/DCIF/VGA/D1/SVGA/HD720p 25FPS UXGA 12.5fps

60Hz QCIF/CIF/2CIF/DCIF/VGA/D1/SVGA 30fps HD720p 15fps UXGA 10fps

Support via standard media player, connected as below (default) :

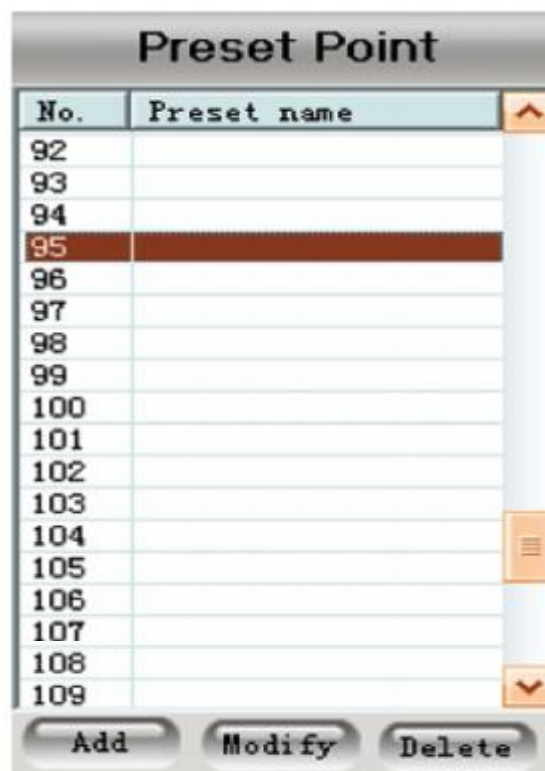
Main code rate : `rtsp://admin:12345@192.0.0.64`

Sub code rate : `rtsp://admin:12345@192.0.0.64/mpeg-4/ch1/sub/av_stream`

2.4.2 Menu Instructions

1. Display menu

Invoke Preset position 95 ; Double click preset point 95 to display main menu on screen.



<MAIN MENU >	
LANGUAGE	CHINESE/ENGLISH
FLICKER CONTROL	50Hz
RESOLUTION	CIF
FRAME	25fps
SHUTTER	OFF
AUTO GAIN	LOW
DAY/NIGHT	Auto
WHITE BALANCE	Auto
EFFECTS MODE	OFF
MIRROR	OFF
EPTZ	OFF
<EXIT>	<SAVE>

Select OSD menu by PTZ control key, as follows:

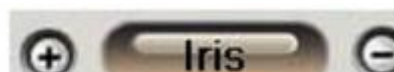


- ※ UP ↑: Means select OSD menu item
- ※ DOWN ↓: Means select OSD menu item
- ※ LEFT ← : Means select parameter on OSD
- ※ RIGHT →: Means select parameter on OSD

Attention :

RESOLUTION and FRAME menu displays cannot be amended and are not selectable.

2. Exit menu



Iris + means Enter. You can select Save, Cancel or Preset according to the exit options.

3. Menu Operations

The menu selection is implemented through the Up, Down, Left and Right buttons. You can select the menu function by Up or Down buttons and enter the specified function by the Left or Right buttons.

- ◆ **LANGUAGE** CHINESE
ENGLISH
Switch CHINESE/ENGLISH by Left or Right buttons
- ◆ **FLICKER CONTROL** 50Hz
60Hz

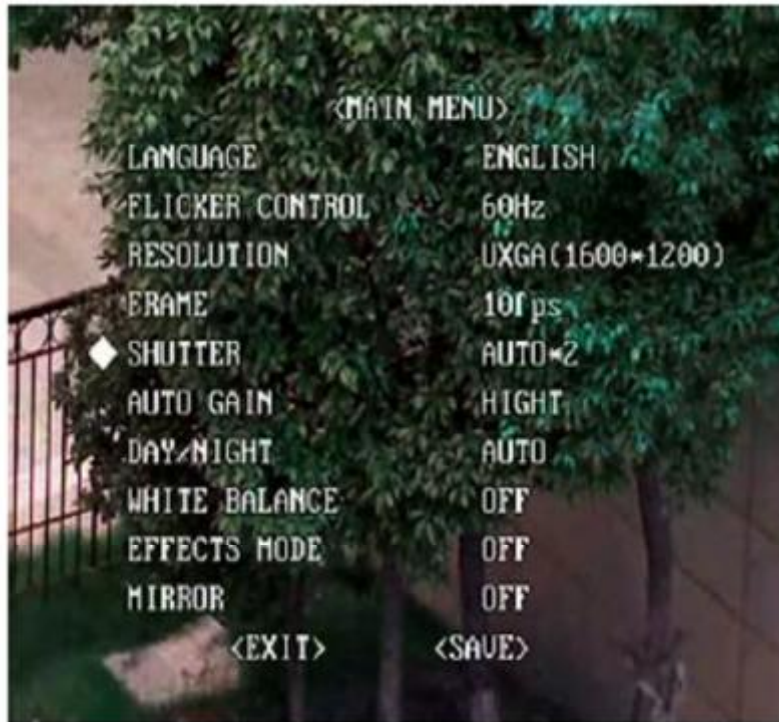
The switch between 50Hz and 60Hz will take effect after clicking the Iris + button.



- ◆ **RESOLUTION**
This option is used for displaying the current resolution but cannot be controlled by the Left or Right buttons.
- ◆ **FRAME**

This option is used for displaying the output frame rate but cannot be controlled by the Left or Right buttons.

- ◆ **SHUTTER** OFF Default Shutter Exposure
- AUTO×2 Longer Shutter Exposure
- AUTO×5 Maximum Shutter Exposure



Resolution	50Hz			60Hz		
	OFF	Auto×2	Auto×5	OFF	Auto×2	Auto×5
DCIF CIF QCIF 4CIF 2CIF VGA SVGA	25fps	12.5fps	5fps	30fps	15fps	5fps
UXGA	12.5fps	12.5fps	5fps	10fps	10fps	5fps
HD720p	25fps	12.5fps	5fps	15fps	15fps	5fps

- ◆ **AUTO GAIN** OFF
 LOW
 MEDIUM
 HIGH

You can set up different auto gain values in low light conditions and increase the picture brightness. This function not only operates independently, but also can be used in conjunction with the shutter option, to achieve better low light illumination effects.

- ◆ **DAY/NIGHT** Auto
 Color
 B&W



In low illumination conditions, the auto mode has a better noise cut-off effect compared with colour mode.

- ◆ **WHITE BALANCE** AUTO Enable the auto W&B of the current screen
OFF Based on the current W&B state - no more auto adjustment.

- ◆ **EFFECTS MODE** OFF
SEPIA
NEGATIVE
SOLARIZE1
SOLARIZE2



If B&W is switched to colour mode this function is switched to OFF.

- ◆MIRROR OFF
 LEFT RIGHT
 UP BOTTOM
 CENTER



- ◆EPTZ OFF Supports mechanical PTZ only
 ON Supports EPTZ function only
- ◆EXIT SAVE Saves the current configuration

CANCEL Reverts to previous configuration
DEFAULT Restores to the default configuration

This mode is employed after clicking “enter” buttons.

4. Parameter Configuration

There are several network parameters that need setting after the hardware installation. These parameters include IP address, subnet mask and port number, etc., which can be set by various means and two of them are detailed below.

1. Set the camera parameters such as IP address and PPPOE through IE.
2. Set the camera parameters through the client software.

Please make sure that the PC and network camera are connected and you can ping successfully before attempting the parameter changes as shown below in Fig.3.1 and Fig. 3.2.



Crossover Connection



4.1 Parameter Configuration through IE

The default IP of the camera is 192.0.0.64 with 8000 as the default port, admin is the administrator and 12345 is the default password. The administrator can create up to 15 separate operators with different rights. To login the camera through IE, input the IP address in the address column and the Login dialogue box will display as Fig. 3.3. Input

your user name and password, and then click Login to enter the Preview page. Double click the Camera 01 channel or Preview button to view the menu as Figure 3.4. Right click the Camera 01 channel and the Main Stream, Sub Stream and Open Sound options will be displayed. Select the Open Sound option.

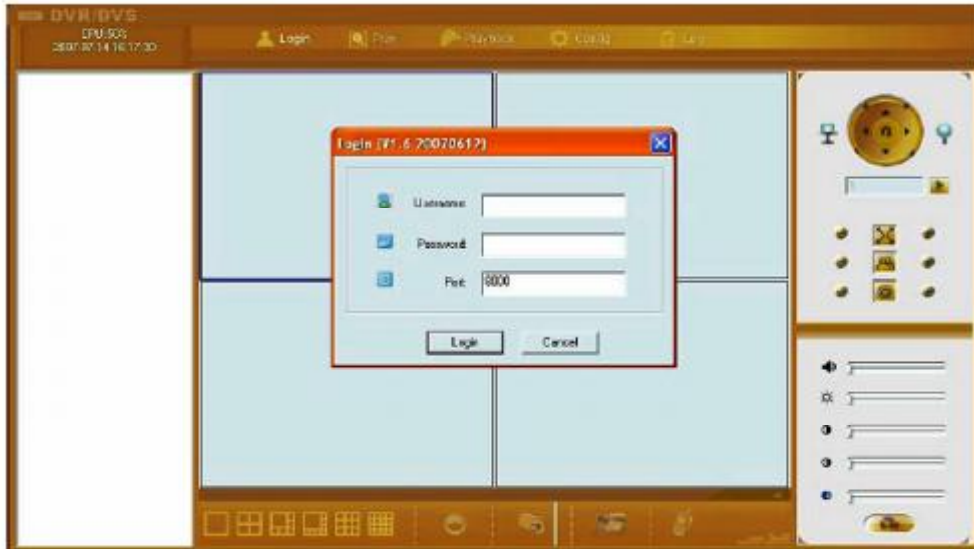


Fig. 4.1.1 Login Interface



Fig. 4.1.2 Preview Interface

It supports Playback and Log functions. To set the camera parameters through IE browser, click Config and wait for the Remote Parameters Config dialogue box to display and then set the parameters such as IP address, etc. as required.

For more specific information regarding Remote Parameters Config, please refer to the Client Software in remote-distance parameter settings. Instructions can be found in the client software path of Start → Program→ client software after installation.

Server Configuration Information			
Device name	Embedded Net DVS	Cycle record	NO
Device ID	88	Enable scaler	Off
No of Channels	1	HDD number	0
Alarm input number	1	Alarm output	1
Device type	IPCAMELA		
Serial number	DS2CD892FP0020081124AACH260036578WC		
NIC type	10M/100M auto	MAC address	00:40:3f:bf:92:b2
IP address	172.16.44.189	Port	8000
Subnet mask	255.255.255.0	Gateway	0.0.0.0
Remote host IP	0.0.0.0	Remote host port	0
Multicast IP	0.0.0.0	HTTP port	80
NAS host IP	0.0.0.0	NAS directory	
RTSP Port			
Server Version Information			
Firmware version	V2.0 build 080812	Hardware version	0x0
Encode version	V4.0 build 080729	Front panel	0

Restore Reboot Confirm

Fig. 4.1.3 Remote Parameters Config

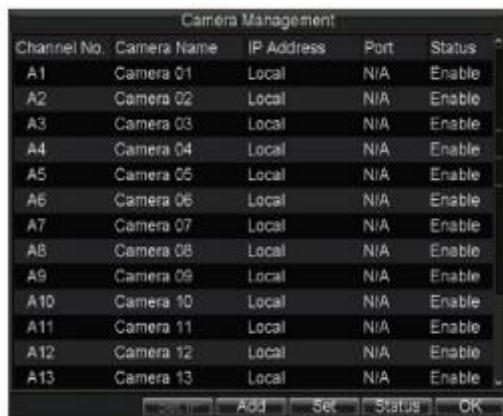
Note: Security level settings are necessary for browsing equipments by IE. Please open the IE browser and set the security level to “Low” in “Tools/ Internet Options/ Security/ Customise” or enable the “ActiveX Controls and Plug-Ins” directly.

4.2 Parameter Configuration through Client Software

Please refer to the client software instruction manual on the CD supplied with your I.P camera.

4.3 Parameter Configuration through DVR9K

Before configuration, please make sure that IP cameras are already connected to the same network. Enter camera management interface Menu→ Configuration Management→ Camera Configuration. Select Add, enter IP Channel Settings interface.



Channel No.	Camera Name	IP Address	Port	Status
A1	Camera 01	Local	N/A	Enable
A2	Camera 02	Local	N/A	Enable
A3	Camera 03	Local	N/A	Enable
A4	Camera 04	Local	N/A	Enable
A5	Camera 05	Local	N/A	Enable
A6	Camera 06	Local	N/A	Enable
A7	Camera 07	Local	N/A	Enable
A8	Camera 08	Local	N/A	Enable
A9	Camera 09	Local	N/A	Enable
A10	Camera 10	Local	N/A	Enable
A11	Camera 11	Local	N/A	Enable
A12	Camera 12	Local	N/A	Enable
A13	Camera 13	Local	N/A	Enable



No.	IP Address	Channels Type	Serial No.	Subnet	
1	192.0.7.130	1	IPC	200235391	255.255.255.0

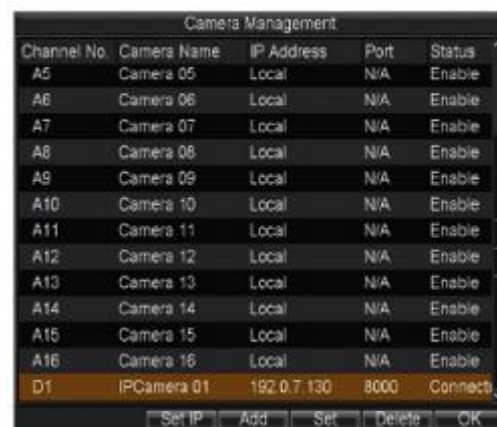
IP Channel No.	D1
IP Address	192.0.7.130
Manage Port	8000
Channel Port	1
User Name	admin
Password	*****

If the IP camera is the same segment with the DVR, please select the IP device in the list, and then input the correct user name and password in the blanks below. Select OK and finish adding the device.



No.	IP Address	Channels Type	Serial No.	Subnet	
1	192.0.7.130	1	IPC	200235391	255.255.255.0

IP Channel No.	D1
IP Address	192.0.7.130
Manage Port	8000
Channel Port	1
User Name	admin
Password	*****



Channel No.	Camera Name	IP Address	Port	Status
A5	Camera 05	Local	N/A	Enable
A6	Camera 06	Local	N/A	Enable
A7	Camera 07	Local	N/A	Enable
A8	Camera 08	Local	N/A	Enable
A9	Camera 09	Local	N/A	Enable
A10	Camera 10	Local	N/A	Enable
A11	Camera 11	Local	N/A	Enable
A12	Camera 12	Local	N/A	Enable
A13	Camera 13	Local	N/A	Enable
A14	Camera 14	Local	N/A	Enable
A15	Camera 15	Local	N/A	Enable
A16	Camera 16	Local	N/A	Enable
D1	IPCamera 01	192.0.7.130	8000	Connect

If the IP camera is not online or is not in the same segment with DVR, the IP of this device can be input manually. Select OK and finish adding the device. If the IP camera is not online, the connection will be setup automatically when online; if the IP camera is not in the same segment with DVR, the connection will be setup after adding it. If Status is Connected, it means device successfully added else please examine the network or adding process. Finish adding all IP devices.

5. WAN Access

IP cameras have their own network capability and can be connected direct through a network for viewing only. In most circumstances however they would be connected through a DVR and do not have to be setup in the modem/router. If they are used independently then each IP camera must be allocated a unique IP address but can use the same port number.

5.1 WAN access using independent IP Camera not connected through DVR

Access to the network can be made via Internet Explorer by specifying the static IP address of the camera or via the client software. The client software can be setup using the Server Properties by setting the Server type, selecting Register Normal to request a static IP address and entering the static IP address. The port number is 8000.

The screenshot shows a 'Server Properties' dialog box with the following configuration:

Field	Value
Server name	camera
Server type	HC
Register	Normal
User name	admin
Port	8000
Multicast	
Belong to area	1
Serial	
Server IP	172.6.44.64
Password	****
Channel	1
DNS IP	

Fig.5.1.1 Static IP Configuration dialogue box

If the network camera is not connected to a DVR and has a static IP set in a modem/router over a network, the TCP port (default 8000) and HTTP port (default 80) require port mapping to allow access via the client software or IE.

The screenshot shows the 'Virtual Servers' configuration page in a 108M Wireless Router. The table below shows the port mapping configuration:

ID	Service Port	IP Address	Protocol	Enable
1	80	192.168.10.23	ALL	<input checked="" type="checkbox"/>
2	8000	192.168.10.23	ALL	<input checked="" type="checkbox"/>
3	80	192.168.10.24	ALL	<input checked="" type="checkbox"/>
4	8000	192.168.10.24	ALL	<input checked="" type="checkbox"/>
5		192.168.10.	ALL	<input type="checkbox"/>
6		192.168.10.	ALL	<input type="checkbox"/>
7		192.168.10.	ALL	<input type="checkbox"/>
8		192.168.10.	ALL	<input type="checkbox"/>

Common Service Port: DNS(53) Copy to: ID 1

Fig.5.1.2 Port mapping

5.2 WAN Access with a dynamic IP address not connected through a DVR

By setting Register in client software to Normal Domain, a dynamic name can be entered in Domain name box. Of course the dynamic name must be registered with a dynamic IP site such as www.dydns.org. The dynamic name will also work with I.E.

The screenshot shows a 'Server Properties' dialog box with the following configuration:

Field	Value
Server name	camera
Register	Normal Domain
User name	admin
Port	8000
Multicast	
Belong to area	
Serial	
Server type	HC
Domain name	
Password	*****
Channel	1
DNS IP	

Buttons: show online device, OK, Cancel

Fig.5.2.1 Configuration of domain name in Client software

6. Common failures and maintenance

6.1 Power on failure

Check if the power plug is fixed into the socket and if the power supply is working correctly.

6.2 Image blurred

Check if the lens connector is correct. There are two types lens mounts i.e C and CS which are different. Adjust lens focus and back focus.

6.3 SD card not working properly

Check if the SD card is fitted correctly in the IP camera and the SD card slot is not damaged. If the system does not recognise the SD card, check if the SD card is compatible.

6.4 What's the relationship between the image quality, resolution and browsing speed under different broadband bandwidths?

Under certain bandwidths, the image quality, resolution and browsing speed have a mutual relationship. The higher the image quality, the higher the resolution, which will inevitably consume more bandwidth. Thus browsing will become slower as resources required become greater. In practical applications, the image quality, standard and best browsing speed can be adjusted to suit the bandwidth available.

6.5 Unable to connect

Check if the network works correctly and if the Link led is on.

6.6 Can camera be used in a very bright glaring light?

Glare caused by direct sunlight or halogen lamp will cause the CMOS or CCD sensor to overload and long-time exposure may burn the image sensor.

6.7 How long can the network of IP camera extend?

Generally, the LAN Cable or UTP Cable can extend to 100m.

7. Technical Specification for IP-CAM850

Parameter Model	IP-CAM850
Image Sensor	1/3 inch CMOS
Effective Pixels	1600(H)×1200(V)
Min. Illumination	0.5Lux/F1.2 0.1Lux/F1.2, sensitization X5
Electronic Shutter	Auto
Auto Iris Lens	---
Day&Night	Electronic (ICR option)
Lens	Option
Lens Mount	C/CS mount
Video Output	1Vp-p Composite Output(75Ω/BNC)
Video Compression	H.264/MPEG-4
Video Output	32 K ~ 2M, adjustable(8Mbps maximum)
Audio Compression	OggVorbis
Image Resolution	50Hz: 1600x1200,1280x720,800x600, 704x576,640x480,528x384,704x288,352x288,176x144 60Hz: 1600x1200,1280x720,800x600, 704x480,640x480,528x320,704x240,352x240,176x120
Frame Rate	50Hz: 25fps(704x576),25fps(1280x720),12.5fps(1600x1200) 60Hz: 30fps(704x480),15fps(1280x720),10fps(1600x1200)
E-PTZ	Supported
Motion Detect	Supported
Dual Stream	Supported
SD Card Local Recording	Supported
Heartbeat	Supported
Password Protect	Supported
Protocols	TCP/IP,HTTP,DHCP,DNS,RTCP, PPPoE
Voice Talk Input	1 channel 3.5mm audio interface(2.0 ~ 2.4Vp-p,1kΩ)
Voice Output	1 channel 3.5mm audio interface(Line level, 600Ω)
Communication	1 RJ45 10M/100M self-adaptive Ethernet port and 1 RS-485 interface
Alarm Input	1 channel relay input
Alarm Output	1 channel relay output
Working Temperature	-10~60°C
Power Supply	AC24V±10%/DC12V±10%, PoE (Power over Ethernet).
Power Consumption	4W MAX
Dimensions (mm)	64.8x63x157.5
Weight	600g

All specifications are approximate. Kovert.com reserves the right to change any product specification or features without notice. Whilst every effort is made to ensure that these instructions are complete and accurate, kovert.com cannot be held responsible in any way for any losses, no matter how they arise, from errors or omissions in these instructions, or the performance or non-performance of the camera or other equipment that these instructions refer.



WEEE.CG07835

This symbol on the products and/or accompanying documents means that used electronic equipment must not be mixed with general household waste. For treatment, recovery and recycling please return this unit to your trade supplier or local designated collection point as defined by your local council.